

west virginia department of environmental protection

Office of Oil and Gas 601 57th Street SE Charleston, WV 25304 (304) 926-0450 (304) 926-0452 fax Earl Ray Tomblin, Governor Randy C. Huffman, Cabinet Secretary www.dep.wv.gov

November 18, 2013

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-5101668, issued to TRANS ENERGY, INC., is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions please feet free to contact me at (304) 926-0499 ext. 1654.

Yames Martin

Chief

Operator's Well No: SIVERT 1H

Farm Name: SIVERT, GEORGE L. & ANTOINE

API Well Number: 47-5101668

Permit Type: Horizontal 6A Well

Date Issued: 11/18/2013

Promoting a healthy environment.

API Number: 51-01668

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. <u>Failure to adhere to the specified permit</u> conditions may result in enforcement action.

CONDITIONS

- 1. Access to the permitted well location shall follow the route shown on the attached map, thereby avoiding traffic associated with Cameron High School.
- 2. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACOE). Through this permit, you are hereby being advised to consult with USACOE regarding this proposed activity.
- 3. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
- 4. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
- 5. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
- 6. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
- 7. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
- 8. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
- 9. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS WELL WORK PERMIT APPLICATION

1) Well Operator:	Trans E	Energy Inc	•	494481575	Marshall	Cameron	Cameron
•				Operator ID	County	District	Quadrangle
2) Operator's Well	Number:	Sivert 1H		W	ell Pad Nam	e: Sivert	
3 Elevation, curren	t ground:	1438'	Ele	vation, proposed p	ost-construc	tion: 1	418'
4) Well Type: (a) C	Gas _		Oil	Underground	Storage		_
	Other _						
(b) I:		Shallow	V LKC	Deep			
5) Existing Pad? Ye		Horizontal	-				
				1.771.1		D ()	
6) Proposed Target Marcellus Shale - 7200'	60' thick	1(s), Deptn(3000 psi	s), Anticipate	ed Thicknesses and	1 Associated	Pressure(s):	
7) Proposed Total V	ertical De	enth: 7	200'				
8) Formation at Total		_	Marcellus Shale				
9) Proposed Total M			12,200				
10) Approximate Fr				ater Wells drilled in the Cou	nty information pro	vided by Health Der	nt .
11) Method to Deter		•	-	150'	nty, mormation pro	7,000 b) 1,0011 bop	
12) Approximate Sa			1525'				
13) Approximate Co		•	900'				
14) Approximate Do		-	The state of the s	carst other):	McElroy - \	/oid	
15) Does proposed v	•				-		
				d depth of mine:	Yes		
16) Describe propos	sed well w	ork: D	rill and Complete ho	rizontal well in the Marcellu	is Shale. Lateral to	be approximately 5	,000 in length.
If Mine void is encounter, p	olease see attac	ched letter					
17) Degariba fraatur	in alatimu	lating math	oda in dotaile				
 Describe fractur A water fracture treatment 	Ŭ			to stimulate the Marcellus Si	hale.		
						- CEIVE	.D
18) Total area to be	disturbed.	including	roads, stockpi	ile area, pits, etc. (acres):	RECEIVE	nd Gas
19) Area to be distur	rbed for w	ell pad only	y, less access	road (acres):	3.51 acres	OCT 042	013

WW - 6B (3/13)

20)

CASING AND TUBING PROGRAM

ТҮРЕ	Size	New or Used	Grade	Weight per ft.	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill -up (Cu. Ft.)
Conductor	24	new	J-55	64	80	80	CTS
Fresh Water	20	new	J-55	94	300	300	CTS
Coal	13 3/8	new	J-55	54.5	850	850	CTS
Intermediate	9 5/8	new	J-55	40	3000	3000	CTS
Production	5 1/2	new	P-110	20		12200	3,0001
Tubing							
Liners							

2KC

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield
Conductor	20	26	0.438	1530	Type 1	13 cu ft/sk
Fresh Water	13 3/8	17 1/2	0.38	2730	Type 1	1.25 cu ft/sk
Coal						
Intermediate	9 5/8	12 1/2	.352	3520	Type 1	1.26 cu ft/sk
Production	5 1/2	8 3/4	.361	12630	Pos H Class H	1.18 cu ft/sk
Tubing						
Liners						

PACKERS

Kind:		
Sizes:		
Depths Set:		

ALCEIVED
Office of Oil and Gas

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NOV 13 2013

Fresh water string - 1 centralizer every 160' Intermediate string - 1 centralizer every 100' from 3300' to 900' Production string - 1 centralizer every 80' from TD to above ROP (7000') 22) Describe all cement additives associated with each cement type.
Production string - 1 centralizer every 80' from TD to above ROP (7000')
22) Describe all cement additives associated with each cement type.
22) Describe all cement additives associated with each cement type.
22) Describe all cement additives associated with each cement type.
22) Describe all cement additives associated with each cement type.
(A) Describe all cement additives associated with each cement type.
Standard Type 1 cement - retarder and fluid loss (surface and interm)
Type 1 + 2% CaC12 + Y4# Flake - Surface Cement mixed @ 15.6 ppg CaC12, Flake (cellohane flake)
Type 1 + 1% CaC12 + Y4# Flake - Intermediate Cement mixed @ 15.6 ppg
Class H in lateral - retarder and fluid loss and dree water additive
22) Puru anad basabala anaditi mina manaduwa
23) Proposed borehole conditioning procedures.
Before cement casing mud will be thinned and all gas will be circulated out of the mid before cementing

*Note: Attach additional sheets as needed.

Received Gas

WELLBORE SCHEMATIC

Well Name:

Sivert 1H

County:

Marshall

Latitude:

39.854202

Longitude:

-80.56628

TVD:

7,200 ft.

TD:

12,200 ft.

Type Casing

<u>Size</u>

Conductor

20"

80'

Footage

Fresh Water

13-3/8"

850 1000

Intermediate

Production

9-5/8

3,000' 12,000'

5-1/2"

	Page	of	
API Number 47 - 5 1	-	01668	
Operator's Well N	No. Siver	t 1H	

STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OFFICE OF OIL AND GAS

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Trans Energy Inc. OP Code 494481575	
Watershed (HUC 10) North Fork of Grave Creek Quadrangle Cameron	
Elevation 1418' County Marshall District Cameron	
Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes _x No Will a pit be used for drill cuttings? Yes No _x If so, please describe anticipated pit waste:	
Will a synthetic liner be used in the pit? Yes No _x If so, what ml.?	
Proposed Disposal Method For Treated Pit Wastes:	
Land Application Underground Injection (UIC Permit Number Reuse (at API Number Off Site Disposal (Supply form WW-9 for disposal location) ■ Other (Explain All frac fluids will be flowed back into storage containers and Buckeye Water Service Company will haul to an approved water disposal facilities	
Will closed loop system be used? yes	
Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Freshwater mud until reaching Marcellus then synthetic	
-If oil based, what type? Synthetic, petroleum, etc. Synthetic	
Additives to be used in drilling medium? See attached	
Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. All cuttings will be hauled to approved landfill	
-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) No Pit	
-Landfill or offsite name/permit number? Short Creek Landfill SWF - 1034	
I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action. I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine or imprisonment.	
Company Official Signature Yelle Vallette	
Company Official (Typed Name) Leslie Gearhart Company Official Title VP - Operations RECEIVED Company Official Title VP - Operations	
Company Official Title VP - Operations Office of Oil and Gas	
Subscribed and sworn before me this and day of the State of West Virginia Notary Public Debra A Martin Of Trans Energy Incorporated 210 2nd Street CC10 My commission expires 11/29/2020 My commission Expires Nov. 29, 202	miniminimi

Form WW-9

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Trans Energy Inc.			Оре	erator's Well No)
Proposed Revegetation Treatmer	nt: Acres Disturbed	Total 21.68 -	Pad 3.51	otation nII	
Lime				tation pH	
Fertilizer (10-20-20 or e	equivalent)	lbs/ac	re (500 lbs minimum)		
Mulch		Tons/acr	e		
		Seed N	Mixtures		
Area I				Area II	
Seed Type	lbs/acre		Seed Type	e	lbs/acre
Meadow Mix	100		Meadow Mix		100
Oats or Rye	50		Oats or Rye		50
Photocopied section of involved ? Plan Approved by: Comments:	7.5' topographic she	et.			
					-
					
Title: Ewurom ewTcl , Field Reviewed? (TwspcTo			OCT	O 4 2013 Doartment of ental Protection

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Water Management Plan: Primary Water Sources



WMP-01377

API/ID Number:

047-051-01668

Operator:

Trans Energy Inc.

Sivert 1H

Important:

For each proposed primary water source (including source intakes for purchased water sources) identified in your water management plan, and summarized herein, DEP has made an evaluation concerning water availability over the specified date range. DEP's assessment is based on the following considerations:

- •Statistical analysis of historical USGS stream gauge data (transferred to un-gauged locations as necessary);
- •Identification of sensitive aquatic life (endangered species, mussels, etc.);
- Quantification of known existing demands on the water supply (Large Quantity Users);
- •Minimum flows required by the Army Corps of Engineers; and
- · Designated stream uses.

Based on these factors, DEP has provided, for each intake location (and origination point for purchased water), a reference gauge location and discharge flow reading which must be surpassed prior to withdrawals. Additionally, DEP has established a minimum passby flow at the withdrawal location which must also be surpassed prior to withdrawals. These thresholds are considered terms of the permit and are enforceable as such.

DEP is aware that some intake points will be used for mutiple wells and well sites. In these cases, the thresholds set by the Water Management Plan are to be interepreted as total withdrawal limits for each location over the specified date range regardless of how many wells are supported by that intake.

For all purchased water intakes, determinations of water availability are made at the original source intake location. It is the responsibility of the Oil and Gas Operator, not the seller, to cease withdrawal of water from the seller when flows are less than the minimum gauge reading at the stream gauge referenced by the Water Management Plan in order to protect stream uses.

Note that the determinations made herein are based on the best available data, but it is impossible to predict water availability in the future. While the DEP has carefully established these minimum withdrawal thresholds, it remains the operator's responsibility to protect aquatic life at all times. Approval to withdrawal is contingent upon permission from the land owner. It is the responsibility of the operator to secure and maintain permission prior to any withdrawals.

The operator is reminded that 24-48 hours prior to withdrawing (or purchasing) water, DEP must be notified by email at DEP.water.use@wv.gov.

APPROVED AUG 2 3 2013

Source Summary

WMP-01377

API Number:

047-051-01668

Operator:

Trans Energy Inc.

Sivert 1H

Stream/River

Source

Ohio River @ J&R Excavating

Marshall

Owner:

J&R Excavating

Start Date

End Date

Total Volume (gal)

Max. daily purchase (gal)

9999999

Intake Latitude: Intake Longitude:

11/1/2013

39.998509

-80.737336

11/1/2014

6,300,000

✓ Regulated Stream?

Ohio River Min. Flow

Ref. Gauge ID:

Ohio River Station: Willow Island Lock & Dam

Max. Pump rate (gpm):

2,940

Min. Gauge Reading (cfs):

6,468.00

Min. Passby (cfs)

DEP Comments:

Refer to the specified station on the National Weather Service's Ohio River forecast

website: http://www.erh.noaa.gov/ohrfc//flows.shtml

Source Detail

				, D 0 tu 11			
	WMP-0)1377	API/ID Number:	047-051-01668	Operator:	Trans Energy	y Inc.
			Siv	ert 1H			
Source II	D: 22421 Sou		River @ J&R Excavatin	g		Latitude: 39.9985 ongitude: -80.737	
☐ Tro	HUC-8 Code: Drainage Area dangered Species out Stream? gulated Stream? oximate PSD? uged Stream?	5030106 (sq. mi.): 250	00 County: N	/Jarshall	nticipated withdrawa Anticipated withdrawa Total Volume from S Max. Pump	I start date: 1 al end date: 1 ource (gal): 6	1/1/2013 1/1/2014 5,300,000 2,940 cks: 0
		9999999	Ohio River Station: V	Willow Island Lock 8	. Dam		
	Reference Gaug Drainage Area (so		000.00	Willow Island Lock &		reshold (cfs):	6468
Month 1 2 3 4 5 6 7 8 9 10 11 12	Median monthly flow (cfs) 45,700.00 49,200.00 65,700.00 56,100.00 24,300.00 16,000.00 12,800.00 12,800.00 26,300.00 41,300.00	Threshold (+ pump	Estimated Available water (cfs)				
	V	Vater Avail	ability Profile		Water Avail	ability Assessment	of Location
					Base Thresh	old (cfs):	-
8000	0				- Upstream D	emand (cfs):	0.00
6000	0 Flow op/f	nic cfream ic r	egulated by the Arr	my Corns of	Downstream	n Demand (cfs):	0.00
			ere to the stated th		Pump rate (cfs):	6.55
4000	0	_	guaranteed flow re		Headwater :	Safety (cfs):	0.00
2000	0		***			tream Safety (cfs):	0.00
	1 2	3 4 5	6 7 8 9	10 11 12	Min. Gauge	Reading (cfs):	-

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

◆ Median Monthly Flow ■ Threshold

west virginia department of environmental protection



Water Management Plan: Secondary Water Sources



WMP-01377	API/ID Number	047-051-01668	Operator:	Trans Energy Inc.
	Si	ivert 1H		

Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- •For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- •For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Source ID: 22422		Source Name	Christopher Fa	arm Pond	Source start date	11/1/2013	
						Source end date	e: 11/1/2014
		Source Lat:	39.88061	Source Long:	-80.572528	County	Marshall
Max. Daily Purchase (gal)					Total Volume from Source (g		6,300,000
	DEP Co	omments:					

WMP-01377	API/ID Number	047-051-01668	Operator:	Trans Energy Inc.
	S	The second secon		

Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

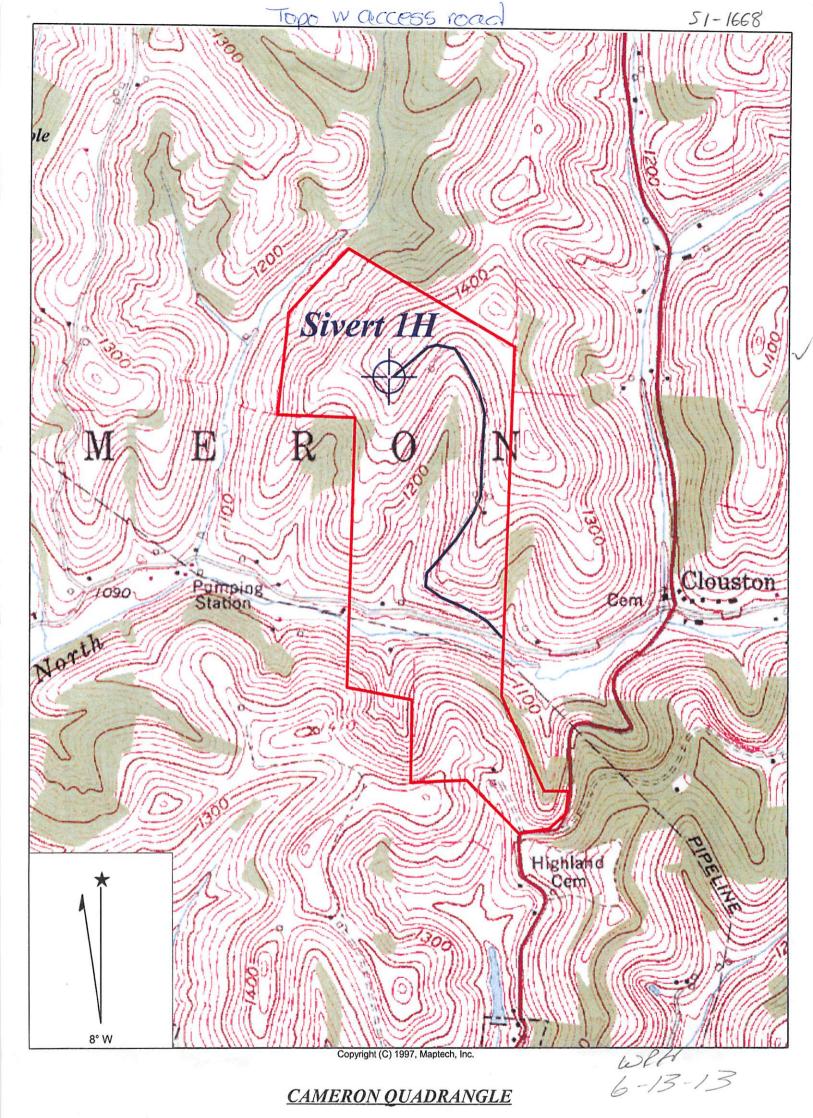
- •For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- •For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Multi-site impoundment

Source ID:	22423	Source Name	Stout Centralized Freshwater Impoundment			Source start date:		11/1/2013	
						Source end	11/1/2014		
		Source Lat:	39.866624	Source Long:	-80.543362	County		Marshall	
	Max. Daily Purchase (gal)				Total Volume from Source (gal):			6,300,000	
	DEP Co	omments:							

The intake identified above has been defined in a previous water management plan. The thresholds established in that plan govern this water management plan unless otherwise noted.

Reference: WMP-971



TRANS ENERGY, INC.

SCALE 1" = 1000'

WELL: SIVERT 1H SIVERT, ET AL 203.749 ACRE LEASE

CAMERON DISTRICT

MARSHALL COUNTY WEST VIRGINIA

Received Office of Oil & Gas

